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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,819	08/04/2003	Masaaki Matsunaga	01165.0903	9219
22852	7590	06/15/2005		EXAMINER
				WANG, GEORGE Y
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/632,819	MATSUNAGA ET AL.	
	Examiner George Y. Wang	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 21 March 2005.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 2-4 and 8-16 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1 and 5-7 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 04 August 2003 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/21/05.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on March 21, 2005 was filed after the mailing date of the Non-Final Rejection on September 22, 2004. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Natsunaga (U.S. Patent No. 5,548,423) in view of Masaki (U.S. Patent No. 4,636,817) and Ohta et al. (U.S. Patent No. 4,614,954, hereinafter "Ohta").

4. As to claim 1, Natsunaga discloses a liquid crystal shutter comprising cells for exposure formed as a plurality of shutter rows on a transparent substrate and built in an exposure device to control the exposure of a photosensitive medium, where the shutter comprises two transparent substrates (fig. 8, ref. 61) including liquid crystal (fig. 8, ref. 62).

However, the reference fails to specifically disclose staggered shutter rows, where a seal is adjacent to the outer periphery of the two transparent substrates and a partitioning wall between shutter rows.

Masaki discloses a liquid crystal shutter for an optical printer with staggered shutter rows (abstract).

Ohta discloses a liquid crystal shutter with a LC panel having spacer walls (fig. 10, ref. 45) for defining the interval between the substrates and a seal at the periphery of the two substrates (col. 7, line 65 – col. 8, line 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have staggered shutter rows and a partitioning wall between shutter rows and a seal at the periphery of the two substrates since one would be motivated not only to define the interval between the substrates (Ohta, col. 8, ref.14-19), which partitioning walls would create, but also to use a staggered configuration to

effectively prevent dot image blurring so that resolution and sharpness of the image can be improved (Masaki, col. 3, lines 10-17).

5. Regarding claims 5-7, Natsunaga discloses the liquid crystal shutter as recited above, however, the reference fail to specifically disclose the plurality of cells being arranged to satisfy the relationship $Q=NP$, where Q is the pitch of the shutter row, P is the pitch of the two cell rows, and N is a positive integer larger than two. Furthermore, the references fail to specifically disclose the pitch, Q being longer than the distance larger than the distance equal to the sum of the width of the partitioning wall and twice the width of the wall fringe, where the width of the fringe is not less than $2 \mu\text{m}$.

Masaki discloses a liquid crystal shutter having a distance between adjacent shutter apertures in each row being 1.2-2.0 times the length of one shutter aperture and where the distance between adjacent shutter apertures in each row is 2.4-3.4 times the length of one shutter aperture (col. 2, lines 15-30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the plurality of cells being arranged to satisfy the relationship $Q=NP$, where Q is the pitch of the shutter row, P is the pitch of the two cell rows, and N is a positive integer larger than two, where Q being longer than the distance larger than the distance equal to the sum of the width of the partitioning wall and twice the width of the wall fringe, which is not less than $2 \mu\text{m}$, since one would be motivated to effectively prevent dot image blurring so that resolution and sharpness of the image can be improved (col. 3, lines 10-17).

Response to Arguments

6. Applicant's arguments filed March 21, 2005 have been fully considered but they are not persuasive.

Applicant argues that the Natsunaga references fails to disclose the problem of the occurrence of interference of light fluxes when the plurality of shutter rows are irradiated with light at the same time and asserts that the reference, therefore, avoids having to increase the size of the substrates of the liquid crystal shutter. However convincing this argument may be, Examiner notes that nowhere are these features recited in the claimed invention. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant also argues that the Masaki reference only teaches on shutter row and not a plurality of shutter rows as recited in the claimed invention. However, Examiner notes that nothing in the claims precludes two or three rows of shutter apertures from recognized as being two or three shutter rows. In fact, the Masaki reference clearly teaches that these shutter rows form the entire shutter array element. Thus, Applicant's argument is not persuasive in regards to the plurality of shutter rows and associated mathematics. Furthermore, even if Applicant's argument was convincing, it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. Therefore, it

would not been obvious, from the teachings of Masaki, to have a plurality of shutter rows.

With regard to the Ohta reference, Applicant argues that Ohta also discloses one shutter row and that the reference confronts a different problem than that of the claimed invention. Applicant asserts that the spacer 45 in Fig 10 is used to maintain the gap but would only relate to the seal that is adjacent to the outer periphery of the transparent substrates and not to the separate partitioning wall. However, Examiner disagrees because Applicant's allegation is not supported by any teachings. In fact, nothing in the claims or in Applicant's disclosure precludes spacer 45 from functioning as a partitioning wall. In addition, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

As a result, Examiner holds to the validity of the references used and maintains rejection.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Y. Wang whose telephone number is 571-272-2304. The examiner can normally be reached on M-F, 8 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gw
June 10, 2005



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